Retail Case Study – Stockouts & Overstocking

1. Problem Statement

A retail store chain is facing frequent stockouts (popular products going out of stock) and overstocking (less-demand products filling up storage). This leads to lost sales, high inventory costs, and dissatisfied customers.

2. Stakeholders

- **Store Managers** → Need stock visibility, avoid stockouts.
- **Supply Chain Team** → Manage timely reorders, reduce overstock.
- **Customers** → Want products available at the right time.
- **Senior Management** → Improve profit & reduce waste.
- **IT/Data Team** → Build and maintain dashboards.

3. Requirement Gathering Approach

- **Interviews** with store managers to understand stock management issues.
- **Data Analysis** of historical sales & inventory trends.
- **Customer Feedback** on product availability.
- **Workshops** with management & IT to align dashboard needs.

4. Proposed Solutions

- **Demand Forecasting** → Use past sales data to predict demand.
- **Automated Inventory Alerts** → Trigger reorder when stock hits threshold.
- **Supplier Collaboration** → Faster restocking for high-demand items.
- **Promotions/Discounts** → Clear slow-moving stock.
- **Dashboard** → Real-time monitoring of sales & stock.

5. Outcome / Benefits

Reduced stockouts → higher customer satisfaction.
Lower holding costs → improved profitability.
Data-driven decision making.
Faster replenishment cycles.

6. Business Requirement Document (BRD)

Background / Problem: Frequent stockouts and overstocking → lost sales, high storage costs.
Objectives:

- Reduce stockouts of popular products by 30% within 3 months.
- Reduce overstocking by 20%.
- Improve customer satisfaction and sales.
- Provide data-driven insights for better decision-making.

Scope:

- In Scope: Sales & inventory dashboard, reorder alerts, product demand categorization, store-wise performance tracking.
- Out of Scope: Warehouse logistics restructuring, supplier contracts.

Stakeholders: Customers, Store Managers, Supply Chain, Senior Management, IT Team.

High-Level Business Requirements:

- Dashboard to show Top & Low Selling Products.
- Reorder alerts for fast-selling products.
- Identify slow-moving products.
- Show sales trends by time, store, and category.

7. Functional Requirement Document (FRD)

Functional Overview:
The system will provide **real-time inventory monitoring, demand forecasting, and automated alerts** to help managers maintain optimal stock levels.

Functional Requirements:

1. **Dashboard Features:**
    - KPI Cards: Total Sales, Stockouts %, Overstock %.
    - Charts: Top 10 Products by Sales, Slow-Moving Products.
    - Filters: Date, Store, Product Category.
    - Alerts: Highlight products below threshold stock.
2. **User Roles:**
    - Store Manager ⟶ Monitor inventory & act on alerts.

- Senior Management → Consolidated company-wide reports.

Non-Functional Requirements:

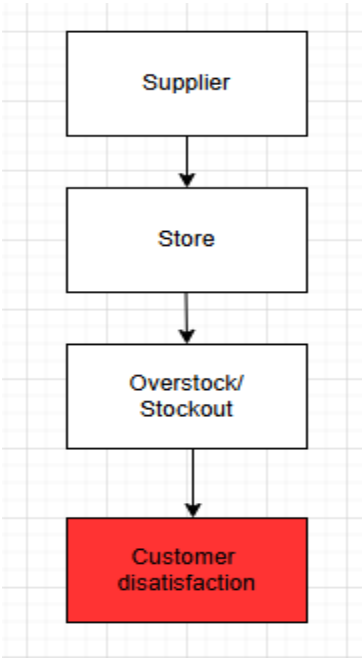
- Real-time or near real-time refresh.
- Easy usability for non-technical staff.
- Secure role-based access.
- Scalable across multiple stores.

Success Metrics:

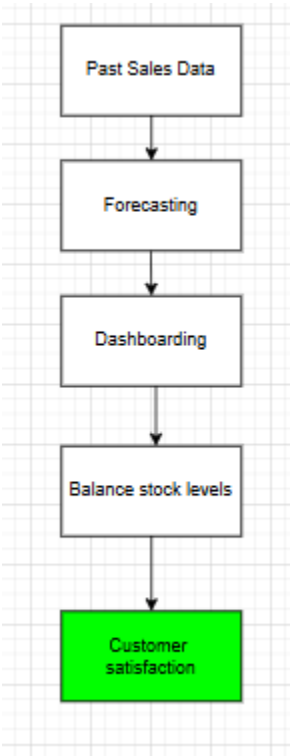
- Stockouts reduced by 30%.
- Overstock reduced by 20%.
- Faster replenishment cycles.
- Increased sales & customer satisfaction.

8. Process Flow

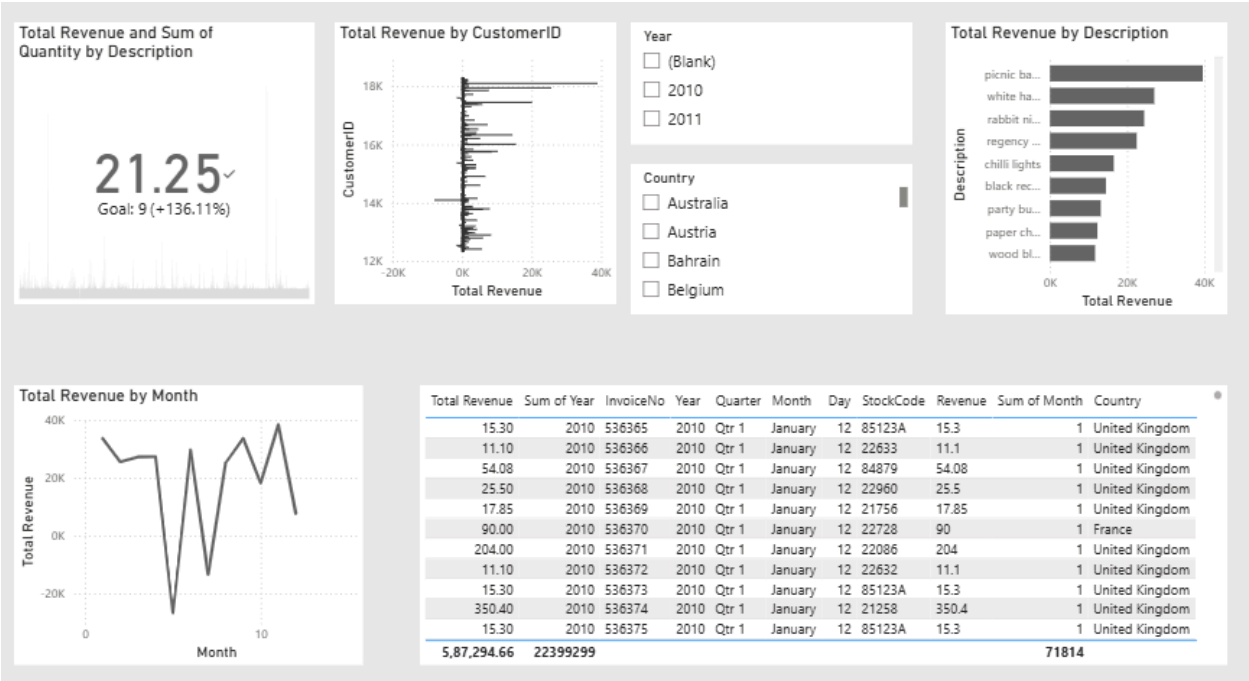
As-Is:



To-Be:



9. Dashboard



Total Revenue	Sum of Year	InvoiceNo	Year	Quarter	Month	Day	StockCode	Revenue	Sum of Month	Country
15.30	2010	536365	2010	Qtr 1	January	12	85123A	15.3	1	United Kingdom
11.10	2010	536366	2010	Qtr 1	January	12	22633	11.1	1	United Kingdom
54.08	2010	536367	2010	Qtr 1	January	12	84879	54.08	1	United Kingdom
25.50	2010	536368	2010	Qtr 1	January	12	22960	25.5	1	United Kingdom
17.85	2010	536369	2010	Qtr 1	January	12	21756	17.85	1	United Kingdom
90.00	2010	536370	2010	Qtr 1	January	12	22728	90	1	France
204.00	2010	536371	2010	Qtr 1	January	12	22086	204	1	United Kingdom
11.10	2010	536372	2010	Qtr 1	January	12	22632	11.1	1	United Kingdom
15.30	2010	536373	2010	Qtr 1	January	12	85123A	15.3	1	United Kingdom
350.40	2010	536374	2010	Qtr 1	January	12	21258	350.4	1	United Kingdom
15.30	2010	536375	2010	Qtr 1	January	12	85123A	15.3	1	United Kingdom
5,87,294.66	**22399299**								**71814**	

10. Final Outcomes

- Improved sales forecasting accuracy.
- Reduced storage costs.
- Higher product availability for customers.
- Better decision-making for managers & supply chain.